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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,155	03/27/2001	Masato Hasegawa	50395-096	7094

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EXAMINER
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LEE, SHUN K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/817,155	HASEGAWA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 13-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 April 2004 has been entered.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 13 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) and Silvestrini *et al.* (US 4,323,619).

In regard to claim **13**, Tower *et al.* disclose (Figs. 1 and 5) a sensor, having a lens body (12), comprising ceramic (column 2, line 63 to column 3, line 7), a supporting part (16, 60), which supports said lens body (12), and a detection part (*i.e.*, optically active portion 32 of the electronic device 24), which detects the light that has been transmitted through said lens body (12). While Tower *et al.* also disclose (column 2, line 63 to column 3, line 7) that the lens body is formed from any suitable ceramic or glass such that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation, the sensor of Tower *et al.* lacks that the lens body contains a pigment that shields visible light and that the pigment in the lens body in a range of 0.001 to 1 mass % (or 0.05 to 2 mass %). Grossinger *et al.* teach (column 2, lines 1-20; column 4, lines 40-55) to provide a lens with pigment particles (*e.g.*, 10% or a considerably reduced pigment amount) that shields visible light from the sensor without distorting or attenuating infrared radiation. Further, Silvestrini *et al.* teach (column 2, lines 50-66; column 3, lines 51-62) to provide 0.2% to 0.8% by weight of carbon black of the MT type in order to absorb light of less than 3  $\mu\text{m}$  wavelength. Therefore it would

have been obvious to one having ordinary skill in the art at the time of the invention to provide less than 10% pigment (e.g., 0.2% carbon black) in the lens body of Tower *et al.*, in order to shield the optically active portion of the electronic device from visible light without distorting or attenuating the desired wavelengths of infrared radiation as taught by Grossinger *et al.*

In regard to claim **34** which is dependent on claim 13, Tower *et al.* also disclose (column 3, lines 35-45, column 4, lines 44-53) that said supporting part (16, 60) is comprised of metal.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622), Silvestrini *et al.* (US 4,323,619), and Scherber *et al.* (US 4,708,419).

In regard to claim **14**, Tower *et al.* in view of Grossinger *et al.* and Silvestrini *et al.* is applied as in claim 13 above. The modified sensor of Tower *et al.* lacks a resin layer (e.g., a polyethylene layer) that covers at least the light receiving surface of the ceramic part of the lens body (12). Scherber *et al.* teach (column 3, lines 3-58) to provide a polyethylene layer overlying infrared components in order to protect the infrared components. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a polyethylene layer overlying the lens body in the modified sensor of Tower *et al.*, in order to protect the lens body as taught by Scherber *et al.*

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) and

Silvestrini *et al.* (US 4,323,619) as applied to claim 13 above, and further in view of Carnall, Jr. *et al.* (US 3,131,238).

In regard to claims **15** and **16** which are dependent on claim 13, while Tower *et al.* also disclose (column 2, lines 63-66) that the lens body is formed from any suitable ceramic or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation, the modified sensor of Tower *et al.* lacks that the main component of said ceramic of said lens body is zinc sulfide (ZnS) having 50% or more linear light transmittance at 8 to 12  $\mu\text{m}$  wavelength. However, zinc sulfide ceramic lenses are well known in the art. For example, Carnall, Jr. *et al.* teach (column 5, line 50 to column 6, line 62) a 1.6 mm thick zinc sulfide infrared optical element have a linear light transmittance of 50% or more (e.g., 75% at 8  $\mu\text{m}$  wavelength). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention that a suitable material for the lens body of Tower *et al.* is zinc sulfide which has a linear light transmittance of 50% or more at a desired infrared wavelength (e.g., 8 to 12  $\mu\text{m}$  wavelength), in order to pass the desired infrared wavelength light (e.g., 8  $\mu\text{m}$  wavelength) through the lens body with minimal distortion or attenuation.

8. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622), Silvestrini *et al.* (US 4,323,619), and Scherber *et al.* (US 4,708,419) as applied to claim 14 above, and further in view of Carnall, Jr. *et al.* (US 3,131,238).

In regard to claims **17** and **18** which are dependent on claim 14, Carnall, Jr. *et al.* is applied as in claims 15 and 16 above.

9. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622) and Silvestrini *et al.* (US 4,323,619) as applied to claim 13 above, and further in view of Roy *et al.* (US 3,974,249).

In regard to claims **19** and **20** which are dependent on claim 13, while Tower *et al.* also disclose (column 2, line 63 to column 3, line 7) that the lens body is formed from any suitable ceramic (e.g., the main component is  $\text{MgAl}_2\text{O}_4$  which is also referred to as spinel) or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation, the sensor of Tower *et al.* lacks that the  $\text{MgAl}_2\text{O}_4$  lens body has 50% or more linear light transmittance at 3 to 5  $\mu\text{m}$  wavelength. However, the properties of  $\text{MgAl}_2\text{O}_4$  are well known in the art. For example, Roy *et al.* teach (column 5, lines 6-55) that  $\text{MgAl}_2\text{O}_4$  has 50% or more linear light transmittance at 3 to 5  $\mu\text{m}$  wavelength. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention that the  $\text{MgAl}_2\text{O}_4$  lens body of Tower *et al.* have 50% or more linear light transmittance at 3 to 5  $\mu\text{m}$  wavelength.

10. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Grossinger *et al.* (US 5,712,622), Silvestrini *et al.* (US 4,323,619), and Scherber *et al.* (US 4,708,419) as applied to claim 14 above, and further in view of Roy *et al.* (US 3,974,249).

In regard to claims **21** and **22** which are dependent on claim 14, Roy *et al.* is applied as in claims 19 and 20 above.

11. Claims 13, 14, 23, 24, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622) and Silvestrini *et al.* (US 4,323,619).

In regard to claim **13**, Castleman discloses (Figs. 8 and 9) a sensor, having a lens body (232), comprising ceramic (*i.e.*, sapphire; column 13, lines 36-47), a supporting part (230), which supports said lens body (232), and a detection part (236), which detects the light that has been transmitted through said lens body (232). The sensor of Castleman lacks that the lens body contains a pigment that shields visible light and that the pigment in the lens body in a range of 0.001 to 1 mass % (or 0.05 to 2 mass %). Grossinger *et al.* teach (column 2, lines 1-20; column 4, lines 40-55) to provide a lens with pigment particles (*e.g.*, 10% or a considerably reduced pigment amount) that shields visible light from the sensor without distorting or attenuating infrared radiation. Further, Silvestrini *et al.* teach (column 2, lines 50-66; column 3, lines 51-62) to provide 0.2% to 0.8% by weight of carbon black of the MT type in order to absorb light of less than 3  $\mu\text{m}$  wavelength. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide less than 10% pigment (*e.g.*, 0.2% carbon black) in the lens body of Castleman, in order to shield the optically active portion of the electronic device from visible light without distorting or attenuating the desired wavelengths of infrared radiation as taught by Grossinger *et al.*



In regard to claim **14**, Castleman in view of Grossinger *et al.* is applied as in claim 13 above. Castleman also discloses (column 13, lines 11-20 and 36-47) a resin layer (*i.e.*, a plastic housing) that covers at least the light receiving surface of the ceramic part of the lens body.

In regard to claims **23** and **24** (which are dependent on claim 13) and claims **28** and **29** (which are dependent on claim 14), Castleman also discloses (column 13, lines 11-20 and 36-47) that said supporting part is comprised of resin (*i.e.*, plastic housing).

12. Claims 25-27 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622) and Silvestrini *et al.* (US 4,323,619) as applied to claims 23, 24, 28, and 29 above, and further in view of Erismann (US 5,818,337).

In regard to claims **25** and **27** (which are dependent on claim 23), claim **26** (which is dependent on claim 24), and claims **30** and **31** (which are dependent on claim 28), claims **32** and **33** (which are dependent on claim 29), while Castleman also discloses (column 13, lines 11-20 and 36-47) a plastic housing, the sensor of Castleman lacks that the plastic is high-density polyethylene. However, plastic housings are well known in the art. For example, Erismann teaches (column 2, lines 50-62) that a plastic housing comprising lens can be formed from a plastic substantially transparent to infrared radiation such as high-density polyethylene. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known plastic for the plastic housing of Castleman such as high-density polyethylene which is substantially transparent to infrared radiation.

13. Claims 35, 36, and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622) and Silvestrini *et al.* (US 4,323,619) as applied to claims 13 and 14 above, and further in view of Adachi *et al.* (US 4,302,674).

In regard to claim **35** (which is dependent on claim 13) and claim **38** (which is dependent on claim 14), the modified sensor of Castleman lacks that said supporting part includes a cylindrical part, which is formed between the portion of said lens body that transmits light and said detection part. Adachi *et al.* teach (column 5, lines 46-58) to provide a cylindrical part in order to receive only substantially perpendicular radiation relative to the detection part. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a cylindrical part between the lens body and the detection part in the modified sensor of Castleman, in order to receive only substantially perpendicular radiation relative to the detection part as taught by Adachi *et al.*

In regard to claim **36** (which is dependent on claim 35) and claims **39** and **40** (which are dependent on claim 38), Castleman is applied as in claims 23 and 24 above.

14. Claims 37 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622), Silvestrini *et al.* (US 4,323,619), and Adachi *et al.* (US 4,302,674) as applied to claims 36 and 40 above, and further in view of Erismann (US 5,818,337).

In regard to claim **37** (which is dependent on claim 36) and claims **41-44** (which are dependent on claim 40), Erismann is applied as in claims 25-27 and 30-33 above.

Applicant is advised that should claim 41 be found allowable, claim 43 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In addition, applicant is advised that should claim 42 be found allowable, claim 44 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Response to Arguments***

15. Applicant's arguments filed 20 April 2004 have been fully considered but they are not persuasive.

Applicant argues (remarks filed 20 April 2004) that none of the applied references alone or in combination, disclose or remotely suggest the recited pigment amounts in claims 13 and 14 since Grossinger *et al.* disclose a pigment in an amount of 10% at column 2, lines 1-9. Examiner respectfully disagrees. Grossinger *et al.* state (column 4, lines 50-55) that "For example, if pigmentation is used, the amount of pigment can be reduced considerably, thereby enabling the use of indicator light emitting diodes (LEDs) within housing 15. The reduced pigmentation also makes the

detector more durable in outdoor conditions". Thus Grossinger *et al.* teach to provide a lens with pigment particles (e.g., 10% or a considerably reduced pigment amount) that shields visible light from the sensor without distorting or attenuating infrared radiation. Further, Silvestrini *et al.* teach (column 2, lines 50-66; column 3, lines 51-62) to provide 0.2% to 0.8% by weight of carbon black of the MT type in order to absorb light of less than 3  $\mu\text{m}$  wavelength. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide less than 10% pigment (e.g., 0.2% carbon black) in the lens body of Tower *et al.*, in order to shield the optically active portion of the electronic device from visible light without distorting or attenuating the desired wavelengths of infrared radiation as taught by Grossinger *et al.*

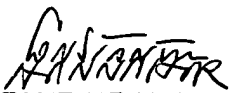
### **Conclusion**

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SL

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
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